primaryio

PrimaryIO APA
for VMware

vmware PARTNER TECHNOLOGY ALLIANCE

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PrimaryIO APA Performance Specification

Introduction

Server virtualization is now ubiquitous in the implementation of IT infrastructures and more than ever before, users are running highly scalable next-generation workloads in their VMware environments. These are often referred to as third platform applications and have tremendous implications for IT transformation.

Organizations are therefore increasingly looking at solutions that not only help solve their server consolidation efforts but also provide value in their digital transformation efforts. On the one hand, virtualization enables more efficient hardware to be used in an optimal way, and on the other hand the dependency on hardware specifics is being reduced. With virtualized environments, several operating systems and applications are run in parallel creating heterogeneous environments on one server.

Benchmark Description

Two benchmarks are used to demonstrate the Primary IO APA solution – the micro-benchmark and the application benchmark, both of which demonstrated the superiority of the APA solution in storage performance and application acceleration at different customer sites.

Micro Benchmark (based on IO Meter): Primary IO put together a micro benchmark that demonstrated at Vodafone that the Primary IO APA solution increases not only the effective storage bandwidth but also VM density, thus making the solution extremely valuable in digital transformation projects involving power savings and datacenter consolidation.

Application Benchmark: In addition, Primary IO also demonstrated improved application performance with the application benchmark results at BMR Turkey

Details of the benchmark are listed below

Micro Benchmark

Configuration

Two ESX 6.0 servers with flash drives -- Micron S630DC Series 2.5" SAS 12 Gb/s 480 GB.

Datastore located on "enterprise grade HDD based array", EMC. LUN backing the datastore has a QoS of 250MB/s.

Guest VM: Windows 2012. Test VMDK size 100GB.

Benchmark – IOMeter (http://www.iometer.org/)

APA version 2.5

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IO depth 32	Random Read 4K/ 8 Threads		Random Write 4K/ 8 Threads	
	IOPS	Latency (us)	IOPS	Latency (us)
EMC	2184	117116	3834	66761
EMC + APA	50971	5020	9054	28266

Application Benchmark

Virtualzation Environment	vSphere 6.0
Storage System	NEC M310 fiber channel backed SAN containing 10 SAS disks
Database Application	Oracle 12.2 running on an RHEL 7.2 VM with 4GB RAM, serving 20 GB application
Concurrent Clients	swingbench customized with 150 concurrent users

	Before Installing PrimaryIO APA	After Installing PrimaryIO APA
Oracle Database Performance	336 TPM	3680 TPM
SAN Lantency	36 ms	6 ms
SAN Read Performance	1050 IOPS	13000 IOPS
SAN Write Performance1	75 IOPS	175 IOPS